

TEST REPORT

 CTK Co., Ltd. The Power Leader of Global Regulatory Certification	CTK Co., Ltd. (Ho-dong) 113, Yejik-ro, Cheoin-gu, Yongin-shi Gyeonggi-do KOREA, REPUBLIC OF Tel: +82-31-339-9970 Fax: +82-31-624-9501	Report No.: CTK-2022-00848 Page (1) / (23) pages	
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1. Applicant

- Name: Hanwha Techwin Co., Ltd.
- Address: 6 Pangyo-ro 319Beon-gil, Bundang-gu, Seongnam-si, Gyeonggi-do, 13488 KOREA
- Date of Receipt: 2022-03-04

2. Manufacturer

- Name: HANWHA TECHWIN SECURITY VIETNAM CO.,LTD
- Address: Lot O-2, Que Vo Industrial Zone extended area, Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam

3. Test sample / Model: Network Camera / PNM-9084RQZ

4. Date(s) of test: 2022-03-16

5. Test Standard (Method) used: NEMA 250-2014
Enclosures for Electrical Equipment (1000 Volts Maximum)

6. Results: Pass

The results shown in this test report refer only to the sample(s) tested unless otherwise stated.
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Approval	Tested by: Min-Gi Mun  (Signature)	Technical Manager: WonHyeon Choi  (Signature)
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2022-03-21

CTK Co., Ltd.



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Test item description	Network Camera
Trade Mark	
Manufacturer	Lot O-2, Que Vo Industrial Zone extended area, Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam
Model/Type reference	Basic Model: PNM-9084RQZ Series Model: PNM-9085RQZ, PNM-9084RQZ1, PNM-9085RQZ1
Ratings	Electrical PNM-9084RQZ: DC 12 V  3.2 A, PoE (55 V ) 0.77 A PNM-9085RQZ: DC 12 V  3.5 A, PoE (55 V ) 0.82 A PNM-9084RQZ1: DC 12 V  3.2 A, PoE (55 V ) 0.77 A PNM-9085RQZ1: DC 12 V  3.5 A, PoE (55 V ) 0.82 A Dimension: Ø 150 mm by 471 mm, Ø 200 mm by 628 mm, Ø 245 mm by 769.3 mm, Ø 10*6 mm by 188.4 mm

List of Attachments (including a total number of pages in each attachment):	
Attachment 1:	12-13 pages (Construction Diagram including installation method)
Attachment 2:	14-19 pages (Parts List)
Attachment 3:	20-23 pages (photographs)

Summary of testing:	
Tests performed (name of test and test clause): Clause 5.7(Hose Down Test)	Testing location: CTK Co., Ltd. 142, Dongbu-ro, Cheoin-gu, Yongin-si, Gyeonggi-do, Republic of Korea

Copy of marking plate: The artwork above may be only a draft.			
기기명칭: NETWORK CAMERA 모델명: PNM-9084RQZ 정격전압: DC 12V ... 38W PoE (55V ...) 42W M/C: PNM-9084RQZ/KDO  제조년월 S/N: [제조번호] MAC ADDRESS: XX-XX-XX-XX-XX-XX 인증번호: R-R-SW-PNM9084RQZ 상호: 한화테크윈(주) 제조자/제조국가: 한화테크윈(주)/한국  US LISTED 9796 E158873   기기명칭: NETWORK CAMERA 모델명: PNM-9085RQZ 정격전압: DC 12V ... 42W PoE (55V ...) 45W M/C: PNM-9085RQZ/KDO  제조년월 S/N: [제조번호] MAC ADDRESS: XX-XX-XX-XX-XX-XX 인증번호: R-R-SW-PNM9085RQZ 상호: 한화테크윈(주) 제조자/제조국가: 한화테크윈(주)/한국  US LISTED 9796 E158873  			

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기기명칭: NETWORK CAMERA 모델명: PNM-9085RQZ1 정격전압: DC 12V ... 42W PoE (55V ...) 45W M/C: PNM-9085RQZ1/KDO Fac. ID: D 2022.02 S/N: Serial No. MAC ADDRESS: XX-XX-XX-XX-XX-XX 인증번호: R-R-StW-PNM9085RQZ 상호: 한화테크윈(주) 제조자/제조국가: 한화테크윈(주)/한국	 NETWORK CAMERA MODEL: PNM-9085RQZ1 DC 12V ... 3.5A PoE(55V ...) 0.82A M/C: PNM-9085RQZ1/KUS Fac. ID: D 2022.02 S/N: Serial No. MAC ADDRESS: XX-XX-XX-XX-XX-XX CAN ICES-3(A)/NMB-3(A) HANWHA TECHWIN CO.,LTD. MADE IN KOREA
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Test item particulars	Network Camera
Classification of installation and use	Outdoor (Watertight/Corrosion Resistant)
Possible test case verdicts:	
- test case does not apply to the test object	N/A
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)
- test case does not evaluated to the test object :	N/E

General remarks:				
"(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. Throughout this report a ☐ comma / ☒ point is used as the decimal separator. Clause numbers between brackets refer to clauses in NEMA 250-2014				
Name and address of factory (ies): 1. HANWHA TECHWIN SECURITY VIETNAM CO., LTD Lot O-2, Que Vo Industrial Zone extended area, Nam Son commune, Bac Ninh city, Bac Ninh province, Vietnam 2. D-TECH CO., LTD. 173-25, Saneop-ro, Gwonseon-gu, Suwon-si, Gyeonggi-do, Korea (Suwon Industrial Complex)				
General product information: Applied NEMA Rating: 4X Model PNM-9084RQZ is basic model which was tested. <table border="1" data-bbox="284 1765 1388 1863"> <tr> <td>Basic Model</td> <td>PNM-9084RQZ</td> </tr> <tr> <td>Series Model</td> <td>PNM-9085RQZ, PNM-9084RQZ1, PNM-9085RQZ1</td> </tr> </table>	Basic Model	PNM-9084RQZ	Series Model	PNM-9085RQZ, PNM-9084RQZ1, PNM-9085RQZ1
Basic Model	PNM-9084RQZ			
Series Model	PNM-9085RQZ, PNM-9084RQZ1, PNM-9085RQZ1			
Model differences: PNM-9084RQZ and PNM-9085RQZ, PNM-9084RQZ1, PNM-9085RQZ1 The model differences are only for function not related to the quality of enclosure integrity.				

Type 4X

Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against access to hazardous parts; to provide a degree of protection of the equipment inside the enclosure against ingress of solid foreign objects (falling dirt and windblown dust); to provide a degree of protection with respect to harmful effects on the equipment due to the ingress of water (rain, sleet, snow, splashing water, and hose directed water); that provides an increased level of protection against corrosion; and that will be undamaged by the external formation of ice on the enclosure.

Table 2-1
Comparison of Specific Applications of Enclosures for Indoor Nonhazardous
(Unclassified) Locations

Provides a Degree of Protection against the Following Conditions	Type of Enclosure									
	1	2	4	4X	5	6	6P	12	12K	13
Access to hazardous parts	X	X	X	X	X	X	X	X	X	X
Ingress of solid foreign objects (falling dirt)	X	X	X	X	X	X	X	X	X	X
Ingress of water (dripping and light splashing)	...	X	X	X	X	X	X	X	X	X
Ingress of solid foreign objects (circulating dust, lint, fibers, and flyings **)	...	...	X	X	...	X	X	X	X	X
Ingress of solid foreign objects (settling airborne dust, lint, fibers, and flyings **)	...	...	X	X	X	X	X	X	X	X
Ingress of water (hosedown and splashing water)	...	...	X	X	...	X	X	...	...	...
Oil and coolant seepage	...	...	...	...	...	...	...	X	X	X
Oil or coolant spraying and splashing	...	...	...	...	...	...	...	...	...	X
Corrosive agents	...	...	...	X	...	...	X	...	...	...
Ingress of water (occasional temporary submersion)	...	...	...	...	...	X	X	...	...	...
Ingress of water (occasional prolonged submersion)	...	...	...	...	...	...	X	...	...	...

** These fibers and flyings are not considered Class III type ignitable fibers or combustible flyings. For Class III type ignitable fibers or flyings see the *National Electrical Code®*, Article 500.5(D).

Table 2-2
Comparison of Specific Applications of Enclosures for Indoor & Outdoor Nonhazardous (Unclassified) Locations

Provides a Degree of Protection Against the Following Conditions	Type of Enclosure									
	3	3X	3R	3RX	3S	3SX	4	4X	6	6P
Access to hazardous parts	X	X	X	X	X	X	X	X	X	X
Ingress of solid foreign objects (falling dirt)	X	X	X	X	X	X	X	X	X	X
Ingress of water (dripping and light splashing)	X	X	X	X	X	X	X	X	X	X
Ingress of water (rain, snow, and sleet **)	X	X	X	X	X	X	X	X	X	X
Sleet ***	...	...	...	...	X	X	...	...	...	...
Ingress of solid foreign objects (windblown dust, lint, fibers, and flyings****)	X	X	...	...	X	X	X	X	X	X
Ingress of water (hosedown and splashing water)	...	...	...	...	...	...	X	X	X	X
Corrosive agents	...	X	...	X	...	X	...	X	...	X
Ingress of water (occasional temporary submersion)	...	...	...	...	...	...	...	...	X	X
Ingress of water (occasional prolonged submersion)	...	...	...	...	...	...	...	...	...	X

** External operating mechanisms are not required to be operable when the enclosure is ice covered.

*** External operating mechanisms are operable when the enclosure is ice covered. See subsection 5.6.

**** These fibers and flyings are not considered Class III type ignitable fibers or combustible flyings. For Class III type ignitable fibers or flyings see the *National Electrical Code®*, Article 500.5(D).

Table 5-1A
Degrees of Protection Against Access to Hazardous Parts

Enclosure Type	Test Conditions	Degree of Protection		Corresponding IP First Characteristic Numeral
		Brief Description	Definition	
4X	5.7	Protected against access to hazardous parts with a wire	An access probe of 1.0 mm shall not penetrate	6

Table 5-1B
Degrees of Protection Against Solid Foreign Objects

Enclosure Type	Test Conditions	Degree of Protection		Corresponding IP First Characteristic Numeral
		Brief Description	Definition	
4X	<u>Non-vented</u> 5.7	Windblown dust protected	No ingress of dust	6
	<u>Vented</u> 5.5.1 Dust Blast Method			



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Table 5-1C
Degrees of Protection against Water

Enclosure Type	Test Conditions	Degree of Protection		Corresponding IP Second Characteristic Numeral
		Brief Description	Definition	
4X	5.7	Protected against hose directed water	Water projected against the enclosure in any direction shall not enter	6 No Ingress Allowed*

Table 5-1D
Additional Protection

Enclosure Type	Test Conditions	Additional Protection		Corresponding IP Second Characteristic Numeral
		Brief Description	Definition	
4X	5.6 5.9 5.10	Special corrosion protection and undamaged by the external formation of ice	Enclosure provides increased corrosion protection and is not damaged by ice that forms on the outside	None

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NEMA 250-2014			
Clause	Requirement + Test	Result - Remark	Verdict

3	CONSTRUCTION		
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3.1	General		P
3.2	Units of Measurement		P
3.3	Materials-General	Enclosures are made of metal or polymeric materials	P
3.4	Materials-Polymeric	More than 650 mm ² (1 in ²) in area Polymeric Materials used is declared as Min. V-2 Used to UL certified material. (See the attachment 2)	N/E
3.5	Corrosion Protection	Stainless steel and/or aluminium are declared as the materials used (See the attachment 2)	N/E
3.6	Openings	No openings in Product	N/A
3.7	Mounting	Mounting means are external to the equipment cavity (See the attachment 1)	P
3.8	Conduit Connection	No conduit connection (See the attachment 1)	N/A
3.9	Hubs and Fittings	No Hubs and Fittings	N/A
3.10	Knockouts	No Knockouts	N/A
3.11	External Operating Mechanisms	No External Operating Mechanisms	N/A
3.12	Access to Interior	Needs tool to open unit	P
3.13	Closing Hardware	No closing Hardware	N/A
3.14	Gaskets	Gaskets made of a silicone Sponge Rubber (no Elastomeric or Thermoplastic used) (See clause 5.14 and the attachment 2)	P
3.15	Observation Windows	No Observation Window	N/A

4	MARKING		
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NEMA 250-2014			
Clause	Requirement + Test	Result - Remark	Verdict
4.1	Type Designations	"Type 4X" Marking is declared to be on the product before on the market	P
4.2	Supplemental Markings	Supplemental Marking (watertight/ corrosion resistant) is declared to be used when it is on the market. The required marking shall be added on the product)	P
4.3	Location of Markings	See the Attachment 3	P
4.4	Enclosure Orientation	No Particular Mounting Orientation	N/A
4.5	Conduit Hubs and Closure Plates	No Conduit Hubs and Closure Plates	N/A
4.6	Equipment Openings	No Openings on Unit	N/A
4.7	Drainage Openings	No Drain Openings	N/A

5	DESIGN TESTS	
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5.1	General	See Table 5-1A to 5-1D and 5.1.5 in the General product information	P
5.2	Tests For Protection Against Access to Hazardous Parts	Rated 4X	N/A
5.3	Tests for Protection Against Ingress of Water (Dripping and Light Splashing)	Rated 4X	N/A
5.4	Tests for Protection Against Ingress of Water (Rain)	Rated 4X	N/A
5.5	Tests for Protection Against Ingress of Solid Foreign Objects (Setting Airborne Dust, Lint, Fibers, And Flings)	Non-vented (See clause 5.7)	N/A
5.6	External Icing Test	No external cavities to trap water when mounted in the normal position.	N/A
5.7	Tests for Protection Against Ingress of Water (Hosedown)	No entry of water See the test information	P
5.8	Indoor Corrosion Protection (Rust-Resistance Test (24-Hour Salt Spray Test))	See clause 3.5	N/E
5.9	Outdoor Corrosion Protection	See clause 3.5	N/E
5.10	Corrosion Protection-Type 3X, 3RX, 3SX, 4X Or 6P Enclosures	See clause 3.5	N/E

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NEMA 250-2014			
Clause	Requirement + Test	Result - Remark	Verdict
5.11	Test for Protection Against Ingress of Water (Temporary Submersion)	Rated 4X	N/A
5.12	Test for Protection Against Ingress of Water (Prolonged Submersion)	Rated 4X	N/A
5.13	Oil Exclusion Test	Rated 4X	N/A
5.14	GASKET MATERIAL TESTS	The product itself (including gaskets) was conditioned at 70 °C for 168 hrs according to 5.14.3(Alternate Evaluation) before performing relevant required tests.	P
5.15	Test for Sharpness of Edges	No sharp edges	P

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NEMA 250-2014			
Clause	Requirement + Test	Result - Remark	Verdict

Test Information

	Hose Down Test: Clause 5.7	P
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Description of Test

The enclosure and its external mechanisms were subjected to a stream of water from a hose that has a 25.4 mm (1 in) inside diameter nozzle and delivers at least 240 L (65 gal) per minute.

The nozzle was held from 3.0 to 3.5 m (10 to 12 feet) from the enclosure, and the spray of water was directed at all points of potential water entry such as seams, joints, external operating mechanisms, and such. The nozzle was moved along each test point one time at a uniform rate of 6 mm/sec(1/4 in/sec).

Sample Dimension

(Ø 150 mm by 471 mm, Ø 200 mm by 628 mm, Ø 245 mm by 769.3 mm, Ø 10*6 mm by 188.4 mm)

Test Duration = 342 secs

Acceptance conditions:

The enclosure shall be considered to have met the requirements if at the conclusion of the test no water has entered the enclosure

Test Results

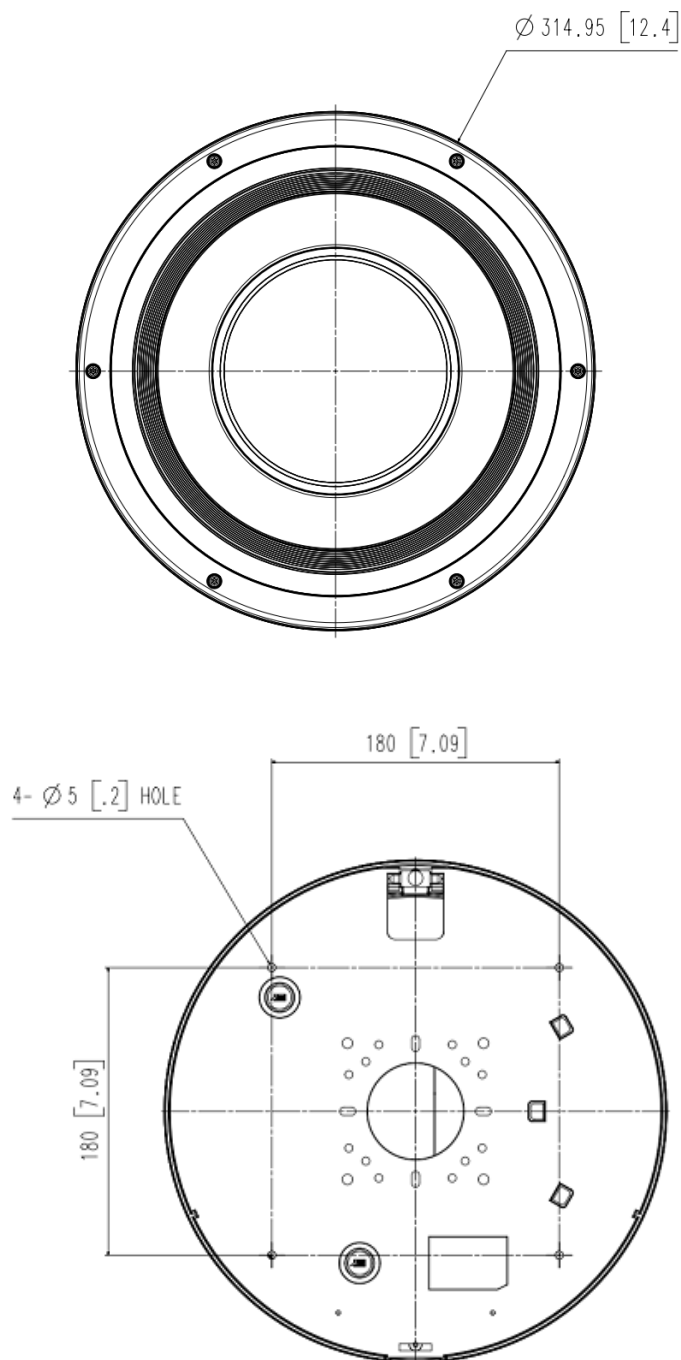
Sample No (Model)	Water Flow	Presence of water inside	Result
PNM-9084RQZ	240 LPM	No	Pass

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List of test equipment used:

Instr. Code	Instrument Type	Range Used	Mfr./Model	Calibration Date	
				Last	Due
S3-IP18	25.4mm Nozzle	25.4 mm	CTK/S3-IP18	-	Checked by calliper below before using
S1-SW2	Stop Watch	0.01 s	CASIO/ NONE	2021-03-19	2023-03-03
C-S1-D09	Steel Measuring Tape	5 m	KOMELON/KMC-74N	2021-06-23	2023-06-18
S3-IP23	Water flow meter	250LPM	Nuri tech/ Z-6504	2022-01-08	2023-01-03
C-S1-D02	DIGITAL VERNIER CALIPER	150 mm	MITUTOYO/150 mm	2021-08-28	2022-08-18

Attachment 1 – Construction Diagram and installation method





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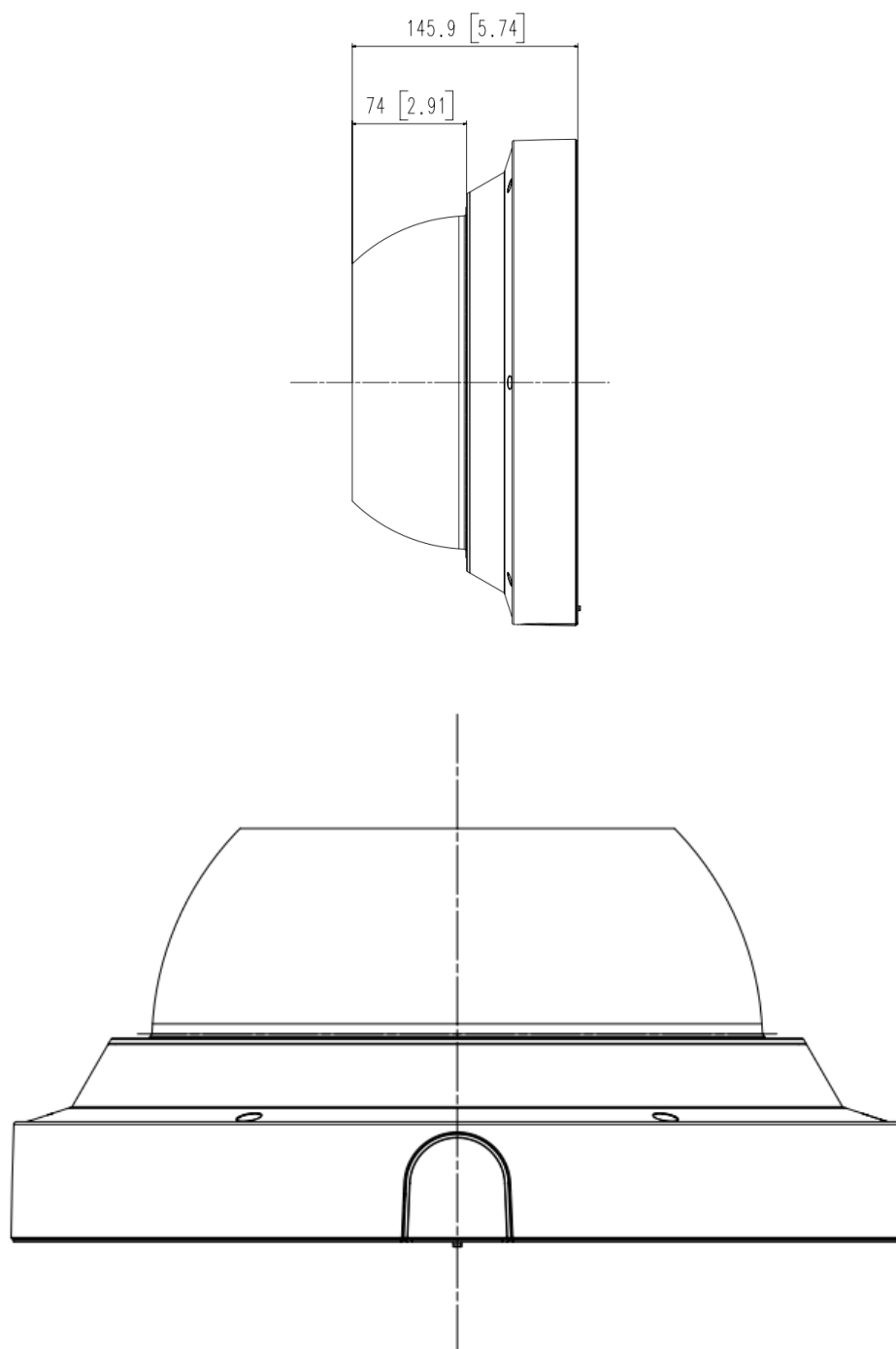
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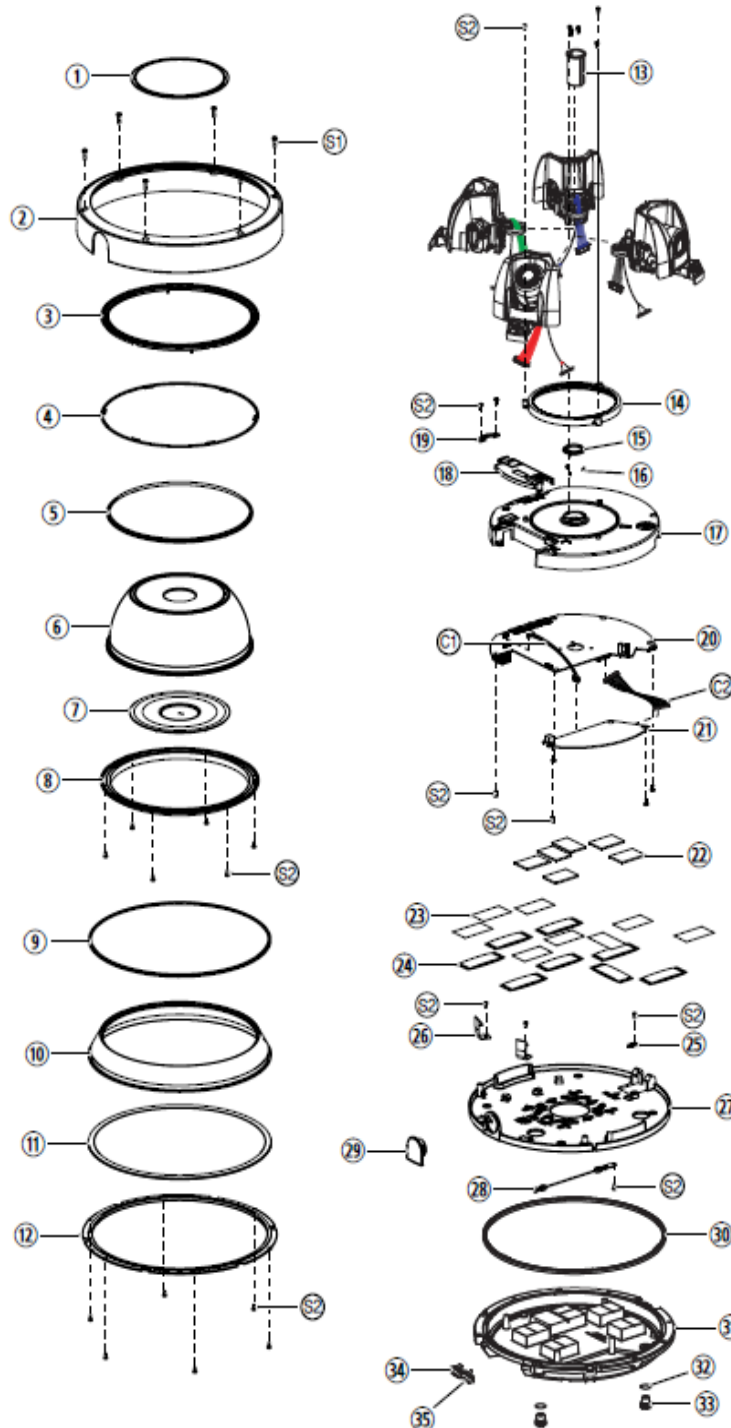
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Attachment 1 – Construction Diagram and installation method



Attachment 2 – Parts List





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Attachment 2 – Parts List

부품위치	부품번호	품명	규격	수량	공급여부	비고
1	FC15-007194A	COVER-TOP_DECO_PNM-9084RQZ		1	SA	
2	FC29-012055A	CASE_TOP_PNM-9084RQZ	WISENET	1	SA	
	FC29-012055B	CASE_TOP_PNM-9084RQZ	HANWHA	1	SA	
3	FC29-012056A	CASE_DOME_PNM-9084RQZ		1	SA	
4	HP07-001464A	GASKET-IR_PNM-9084RQZ		1	SA	
5	HP07-001466A	GASKET-DOME_PNM-9084RQZ		1	SA	
6	FC15-007199A	COVER-GLASS_PNM-9084RQZ		1	SA	
7	FC15-007197A	COVER-GHOST_PNM-9084RQZ		1	SA	
8	FC09-010688A	BRACKET-IR_PNM-9084RQZ		1	SA	
9	HP07-001467A	GASKET-TOP_PNM-9084RQZ		1	SA	
10	FC15-007193A	COVER-GLASS_IR_PNM-9084RQZ		1	SA	
11	HP07-001518A	GASKET_SUB_IR		1	SA	
12	FC09-010687A	BRACKET-TOP_PNM-9084RQZ		1	SA	
13	MC19-003052A	SHAFT-PAN-9084		1	SA	
14	MC11-005437A	GEAR-PAN-9084;MOLD		1	SA	
15	FC15-007117A	COVER-SPRING-9084;MOLD		1	SA	
16	FC38-001147A	SPRING,COM-6040;SUSU304WPB		3	SA	
17	FC39-005816A	FRAME_BODY_PNM-9084RQZ		1	SA	
18	FC15-007302A	COVER_OUTPUT_CABLE_PNM-9084QZ		1	SA	
19	FC29-012277A	HOLDER_HINGE_PNM-9084RQZ		1	SA	
20	AM06-009101A	PCB_MAIN		1	SA	
21	EP06-004095A	smpls		1	SA	
22	FC28-000556A	PAD_THERMAL_30x45x2		6	SA	
23	RM04-000145A	TAPE-DOUBLE SIDED;3M 6408,T0.1,W25,L25		8	SA	
24	PM02-003026A	DESIPAK-6G		8	SA	
25	FC09-006670A	BRACKET_WIRE_SNP-8081R		1	SA	
26	FC38-001138A	SPRING_ETC_FIXED_9080VQ		2	SA	
27	FC39-005815A	MOUNT-PLATE_PNM-9084RQZ		1	SA	
28	RM01-004164A	WIRE_METALIC_SAFETY		1	SA	
29	FC15-007239A	COVER_CONDUIT_PNM-9084RQZ		1	SA	
30	HP07-001465A	GASKET-BOTTOM_PNM-9084RQZ		1	SA	
31	FC29-012057A	CASE-BOTTOM_PNM-9084RQZ		1	SA	
32	HP07-001516A	GASKET_GRE_DUMMY		1	SA	
33	HP06-001283A	VENT_DUMMY_GORE		2	SA	
34	MC06-001042A	BUSH-CABLE		1	SA	
35	MC06-001082A	BUSH-CABLE_FLEXIBLE		1	SA	
C1	EP02-004679A	HARNESS 2P IR		1	SA	
C2	EP02-004680A~3A	HARNESS 20PIN(RED, GREEN, BLUE, BLACK)		1	SA	
S1	FC18-004000A	SCREW_BUILT_IN_TORX_20_M4, L12		6	SA	
S2	Z9642306007	SCREW_MACHINE_M3, L6 black		26	SA	



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Attachment 2 – Parts List

UL 인증 | 롯데첨단소재

INFINO

Grade

SC-1220UR

iq.ul.com

Component - Plastics [\[guide info\]](#)

E115797

Lotte Advanced Materials Co Ltd

56 Gosan-ro, Uiwang-si Gyeonggi-do 437-711 KR

SC-122(+)

Polycarbonate (PC), "INFINO", furnished as pellets

	Min Thk	Flame			RTI	RTI	RTI
Color	(mm)	Class	HWI	HAI	Elec	Imp	Str
ALL	0.75	V-2	-	-	80	80	80
	1.5	V-2	-	-	80	80	80
	2.5	V-2	-	-	80	80	80
	3.0	V-2	-	-	80	80	80
NC	3.2	V-2	-	-	80	80	80

Comparative Tracking Index (CTI): -

Dielectric Strength (kV/mm): -

High-Voltage Arc Tracking Rate (HVTR): -

Dimensional Stability (%): -

Inclined Plane Tracking (IPT): -

Volume Resistivity (10⁹ ohm-cm): -

High Volt, Low Current Arc Resis (D495): -

(+) - May be replaced by one, two, or three numbers and/or letter(s)

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 1998-08-24

Last Revised: 2016-04-18

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IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.75	V-2 (ALL)
			1.5	V-2 (ALL)
			2.5	V-2 (ALL)
			3.0	V-2 (ALL)
			3.2	V-2 (NC)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	1.5	900
			2.5	925
			3.2	925
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	1.5	800
			2.5	825
			3.2	850
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m ²	-	-
ISO Izod Impact	ISO 180	kJ/m ²	-	-
ISO Charpy Impact	ISO 179-2	kJ/m ²	-	-

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Attachment 2 – Parts List

LOTTE
ADVANCED MATERIALS

UL 인증 | 롯데첨단소재

INFINO

Grade

NH-1035

iq.ul.com

Component - Plastics [guide info]

E115797

Lotte Advanced Materials Co Ltd

56 Gosari-ro, Uiwang-si Gyeonggi-do 437-711 KR

NH-1035(+)

Polycarbonate (PC), "INFINO", furnished as pellets

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
ALL	1.5	V-0	-	-	80	80	80
	2.0-2.7	V-0, 5VB	-	-	80	80	80

Comparative Tracking Index (CTI): -

Dielectric Strength (kV/mm): -

High-Voltage Arc Tracking Rate (HVTR): -

Dimensional Stability (%): -

Inclined Plane Tracking (IPT): -

Volume Resistivity (10⁹ ohm-cm): -

High Volt, Low Current Arc Resis (D495): -

(+)- May be replaced by one, two, or three numbers and/or letter(s)

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Report Date: 1996-03-24

Last Revised: 2008-02-15

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IEC and ISO Test Methods

Test Name	Test Method	Units	Thk (mm)	Value
Flammability	IEC 60695-11-10, IEC 60695-11-20	Class (color)	1.5	V-0 (ALL)
			2.0-2.7	V-0, 5VB (ALL)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m ²	-	-
ISO Izod Impact	ISO 180	kJ/m ²	-	-
ISO Charpy Impact	ISO 179-2	kJ/m ²	-	-

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Attachment 2 – Parts List

Component - Plastics

E41179

MITSUBISHI ENGINEERING-PLASTICS CORP

ENVIRONMENT & QUALITY ASSURANCE DEPT, DIV 1, SHIODOME SUMITOMO-BLDG 25TH FL, 1-9-2 HIGASHI-SHINBASHI, MINATO-KU TOKYO 105-0021 JP

S-2000V+(f1), S-2001V+(f1), S-2003V+(f1)

Polycarbonate (PC), unreinforced, furnished as pellets

Color	Min Thk (mm)	Flame Class	HMI	HAI	RTI Elec	RTI Imp	RTI Str
ALL	0.38	V-2	-	-	80	80	80
	1.5	V-2	3	0	125	115	125
	3.0	V-2	3	0	125	115	125

Comparative Tracking Index (CTI): 2

Inclined Plane Tracking (IPT): -

Dielectric Strength (kV/mm): 20

Volume Resistivity (10⁸ ohm-cm): 7

High-Voltage Arc Tracking Rate (HVT): 0

High Volt, Low Current Arc Resis (D495): 5

Dimensional Stability (%): 0

(f1) - Suitable for outdoor use with respect to exposure to Ultraviolet Light, Water Exposure and Immersion in accordance with UL 746C.

+ - Suffix optional, exceptions: The following cannot be used as optional suffixes: "T" for grade 2030, "A" for 1501, 1502, 1511, 1521 & 2502, "H" for NXG5050, NXG5030, NXG5501, & CGF-(v)(u), "S1" for F20-54.

ANSI/UL 94 small-scale test data does not pertain to building materials, furnishings and related contents. ANSI/UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by UL.

Report Date: 1992-10-01

Last Revised: 2004-03-23

Underwriters Laboratories Inc®

IEC and ISO Test Methods

Test Name	Test Method	Units	Thickness Tested (mm)	Value
Flammability	IEC 60695-11-10	Class (color)	0.38	V-2 (ALL)
			1.5	V-2 (ALL)
			3.0	V-2 (ALL)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m ²	-	-
ISO Izod Impact	ISO 180	kJ/m ²	-	-
ISO Charpy Impact	ISO 179-2	kJ/m ²	-	-

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Attachment 2 – Parts List

LG CHEM LTD

128 Yeoui-daero Yeongdeungpo-gu
LI996(&)

Acrylonitrile Styrene Acrylate (ASA)

-- (&) May be replaced by one, two, or three numbers and/or letter, except Grade AF3675H, XR401B, AF366F and AF367T



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Flammability		Nominal Value Unit	Test Method
Flame Rating			UL 94, IEC 60695-11-10, -20
0.08 in. ALL			
0.12 in. ALL			
Electrical		Nominal Value Unit	Test Method
Hot-wire Ignition (HWI)			UL 746A
0.08 in			
0.12 in			
High Amp Arc Ignition (HAI)			UL 746A
0.08 in			
0.12 in			
Comparative Tracking Index (CTI)			UL 746A
High Voltage Arc Tracking Rate (HVTR)			UL 746A
Arc Resistance			ASTM D495
Thermal		Nominal Value Unit	Test Method
RTI Elec			UL 746B
0.08 in		°F	
0.12 in		°F	
RTI Imp			UL 746B
0.08 in		°F	
0.12 in		°F	
RTI Str			UL 746B
0.08 in		°F	
0.12 in		°F	

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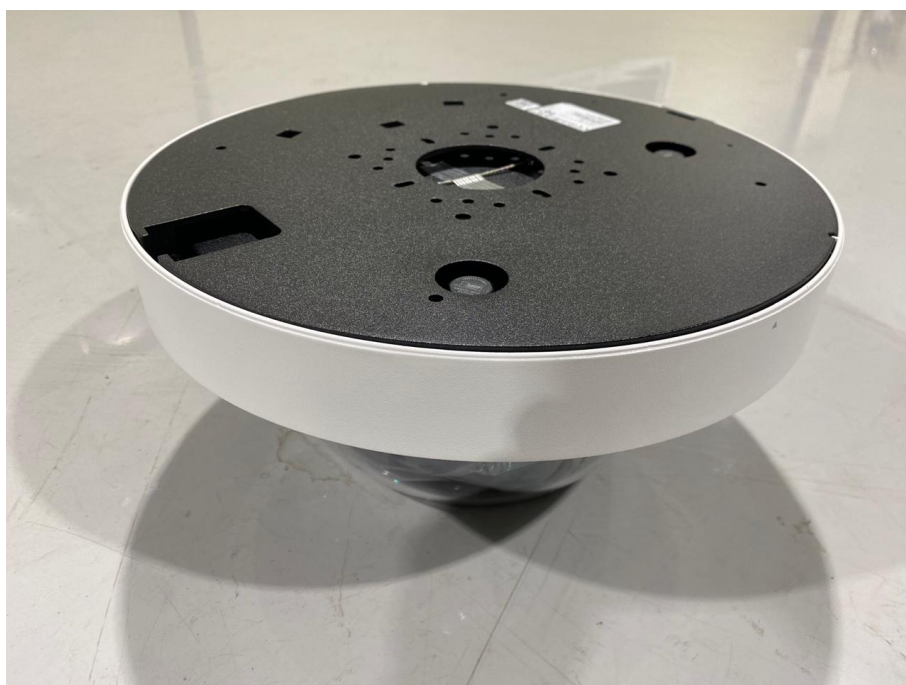
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Attachment 3 – Photographs

<Photo 1 > Test Unit





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Attachment 3 – Photographs

<Photo 2 > Hose down test



Attachment 3 – Photographs

<Photo 3 > Test Result



<Photo 4 > Test Result





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Attachment 3 – Photographs

<Photo 5 > Test Result



- END -